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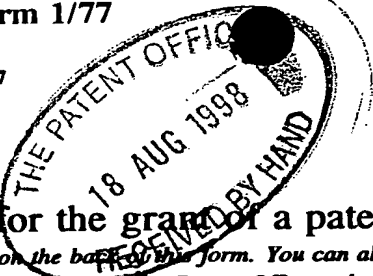
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18 AUG 1998

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Request for the grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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1. Your reference	RSJ05870GB		
2. Patent application number (The Patent Office will fill in this part)	9818022.7		
3. Full name, address and postcode of the or of each applicant (underline all surnames)	<u>Madge Networks Limited</u> 100 Lodge Lane Chalfont St. Giles Bucks HP8 4AH Patents ADP number (if you know it) 4410866001 If the applicant is a corporate body, give the country/state of its incorporation Great Britain		
4. Title of the invention	Communications Network		
5. Name of your agent (if you have one)	GILL JENNINGS & EVERY		
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)	Broadgate House 7 Eldon Street London EC2M 7LH Patents ADP number (if you know it) 745002		
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day / month / year)	
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. See note (d))	YES		

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

2

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents
(*please specify*)

11. For the Applicant
Gill Jennings & Every

I/We request the grant of a patent on the basis of this application.

Signature



Date

18 August 1998

12. Name and daytime telephone number of person to contact in the United Kingdom

SKONE JAMES, Robert Edmund
0171 377 1377

Warning

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Notes

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Communications Network

The present invention described here as Multigig Token (or just "Multigig"), provides an evolution path for Token Ring users, and provides an advance backbone for LANs based on both Token Ring and Ethernet.

The ideas apply to the backbones in LANs, based on dedicated point to point links between switches and other devices, but are also applicable to other aspects of the LAN. This provides an attractive solution for implementing a high-performance and high-functionality backbone for networks which are up to now exclusively Ethernet.

The Multigig Token of the invention is a superset of Ethernet, and specifically Gigabit Ethernet. Connections are made with 1 gigabit Multigig ports without any modification or special set-up.

This is achieved using a protocol (preferably invisible to Ethernet) to negotiate a token-ring style connection between two Multigig devices. Once this had been established, a port continues to operate exclusively in this token-ring mode until link closure. In this mode, frames are formatted in a familiar token ring style.

The Multigig mode of operation provides beyond 1 gigabit speeds. This has two variations: one where multi gigabit operation is achieved through link aggregation of single gigabit connections; secondly through the definition of a 10 gigabit standard on optical connections only.

Connections between Multigig switches operate using the token-ring mode. Multigig switches operate according to 802.1Q. Thus, frames received from Ethernet-mode ports are VLAN-tagged for transport over Multigig inter-switch links. Where a Multigig switch has two or more ports operating in Ethernet mode, the 802.1Q operation allows frames to be relayed between those ports unchanged.

Resilience and load sharing in inter-switch connections is provided, as an extension of Token Ring's

existing source routing capabilities and through the provision of redundant links.

5 In this way enhanced resilience beyond that achievable through spanning tree or source route rediscovery is provided. Switches take over the task of selecting the best source route. Switches then reroute packets when topology change was detected, and optionally notify neighbours of topology change.

10 Multigig also provides effective mechanisms to support bandwidth allocation and flow control.

In this case, the Ethernet Xon/Xoff protocol for flow control is unacceptable because it causes head-of-line blocking and inefficient use of inter-switch links. Multigig therefore supports a modestly extended scheme for
15 link-based flow control, in which the Xon/Xoff message specifies a simple flow identifier such as user priority or VLAN ID, or both.